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Energy-momentum tensor and D-term in the presence of electromagnetic long-range forces MIRA VARMA, PETER SCHWEITZER, University of Connecticut — The prospects of accessing information on the hadronic form factors of the energy-momentum tensor (EMT) have attracted a lot of interest in literature. This concerns especially the D-term form factor D(t) with its appealing interpretation in terms of internal forces. With the focus on hadron structure, so far theoretical and model studies concentrated on strongly interacting systems with short-range forces. Not considered so far were long-range forces like electromagnetic interaction, which is thought to play a negligible role for the balance of forces inside the proton. But the long-range nature of electromagnetic forces introduces features that were not encountered before. We use a case study in a classical model of the proton to show how the presence of long-range forces alters some notions which can be taken for granted in short-range systems. The important conclusion is that a more careful definition of the D-term may be required when long-range forces are present.

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